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Results of a 10-yr study of a breeding population of Swainson's hawks (*Buteo swainsoni*) in the Butte Valley, northern California, are presented. Occupancy and reproductive performance were monitored at 23–83 territories between 1984 and 1994, and 454 breeding attempts were recorded. One-hundred and fifty breeding adults have been trapped and colorbanded since 1984; we present data in territory fidelity and annual turnover rates of marked adults. In 1994, 61 territories were known to be occupied by pairs. Of the 124 adults observed in the study area, 81% were colormarked or banded. Approximately 550 nestlings have been banded since 1979; 42 of these were later recaptured as breeding adults 3–12 yr of age. We discuss annual variability in adult turnover and reproductive performance.

## GENERAL SCIENTIFIC PROGRAM

### FERRUGINOUS HAWKS IN MONTANA WITH SPECIAL EMPHASIS PLACED ON DELINEATION OF SUITABLE HABITATS FOR SURVEYS GENERATED THROUGH A STATEWIDE GIS

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Statewide distribution of ferruginous hawks (*Buteo regalis*) in Montana was reviewed with an emphasis placed upon habitat use in four very different and very separated study areas. This habitat assessment was joined with a statewide geographic information system (Montana Agricultural Potentials System) to provide maps of potential ferruginous hawk habitat. These maps were generated with a resolution of 21.3 km$^2$ and were produced through the use of three land-attribute layers: land ownership, land use, and climax vegetation. These maps will provide the land-manager and field biologist with easily accessible baseline information regarding the placement of long-term ferruginous hawk nesting quadrats for population monitoring.

### ORANGE-BREASTED FALCON (*FALCO DEIROLEUCUS*) BREEDING BIOLOGY, NESTING SITES, AND DISTRIBUTION IN GUATEMALA AND BELIZE

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We studied the breeding biology of the orange-breasted falcon (*Falco deiroleucus*) in Guatemala and Belize during 1992, 1993, and 1994. Historically considered a species dependent on vast tracts of primary forest, four of our 15 known sites exist in severely fragmented habitats of primary and secondary forest, agriculture, and pasture. To what degree these non-primary forest habitats are utilized is unknown. Of 26 nesting attempts, 13 succeeded in fledging 28 young. Three nests failed during incubation and three while brooding. In 1994 an adult male was trapped and outfitted with a tail-mounted transmitter. Although this pilot study was conducted through biangulation, it indicates that this male was commonly travelling from 5–10 km from the nest over successional forest, intensive agriculture, and pasture. In 1994 nine active sites in Belize fit inside a diameter of 30 km and 13 active sites in Guatemala and Belize within a 160 km diameter. Orange-breasted falcons occur and appear to be successful in a variety of habitats and nesting circumstances. Perhaps, like the peregrine falcon, they are more adaptable to a rapidly changing landscape than previously suspected.

### COMPARISON OF ROADSIDE COUNTS AND RADIOTELEMETRY TO DETERMINE HABITAT USE OF FERRUGINOUS HAWKS WINTERING ON ROCKY MOUNTAIN ARSENAL, COLORADO

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The ferruginous hawk (*Buteo regalis*) is currently classified as a candidate species for inclusion on the federal threatened and endangered species list. As a migratory raptor, the over-wintering condition of ferruginous hawks is important to the overall reproductive rate of the species. However, little information is available on the habitat use of wintering ferruginous hawks. We used two standard methods, roadside counts and radio-tracking, to evaluate habitat use of ferruginous hawks wintering on Rocky Mountain Arsenal (RMA), northeast of Denver, Colorado. A comparison of the similarities and differences of the two survey methods will be presented. The results of this study will provide information on the advantages, disadvantages, and applicability of survey methods to evaluate raptor habitat use. The RMA has recently been designated a national wildlife area and is also a major superfund site currently in the initial stages of extensive clean-up operations. Providing habitat use information will allow the U.S. Fish and Wildlife Service to manage resources, wildlife viewing opportunities, and provide input into clean-up operations that may impact ferruginous hawks.